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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/761,765	01/18/2001	Charles Anderson	3633-501	5931

20582 7590 03/15/2002

PENNIE & EDMONDS LLP
1667 K STREET NW
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WASHINGTON, DC 20006

EXAMINER

PIZIALI, ANDREW T

ART UNIT	PAPER NUMBER
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1775

DATE MAILED: 03/15/2002

8

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/761,765

Applicant(s)

ANDERSON ET AL.

Examiner

Andrew T Piziali

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 February 2002.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) 4-9 and 17-19 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 14-16 and 20-25 is/are rejected.
- 7) ☒ Claim(s) 10-13 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4 and 5.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

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DETAILED ACTION

Election/Restrictions

1. Applicant's election of Group d) in Paper No. 7 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 20-25 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 1 is not drawn to an antireflection coating, but to a transparent substrate and an antireflection coating. Claim 20 is indefinite, as are the claims dependant thereon, because they refer back to a claim to an article, not a coating. Claim 25 is also unclear with respect to "adapting" which implies unrecited limitations.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-3 and 14 are rejected under 35 U.S.C. 102(b) as being anticipated by US Patent No. 4,940,636 to Brock.

Brock discloses a glass substrate with a multi-layer stack comprising alternating thin

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layers of high and low refractive indices wherein the high index thin layer comprises titanium oxide and a second metal oxide, such as 5-12 mole % zirconium oxide, and the low index thin layer comprises silicon oxide (see patent claim 1).

6. Claims 1-3 and 14 are rejected under 35 U.S.C. 102(b) as being anticipated by Japanese Patent Publication No. 59-184744 to Nakano.

Nakano discloses a glass substrate with a multi-layer stack comprising alternating thin layers of high and low refractive indices wherein the high index thin layer comprises titanium oxide and zirconium oxide, and the low index thin layer comprises silicon oxide (Patent Abstract of Japan).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 15-16, 20-23 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No. 4,940,636 to Brock in view of US Patent No. 5,073,451 to Iida.

Regarding claim 15, Brock discloses a glass substrate with a multi-layer stack comprising alternating thin layers of high and low refractive indices wherein the high index thin layer comprising titanium and a second metal oxide, such as 5-12 mole % zirconium oxide, and the low index thin layer comprises silicon oxide (see patent claim 1). Brock discloses that the thin layer most removed from the substrate may be the low index layer (column 4, example 2). Brock fails to mention or suggest the use of an silicon/aluminum oxide for the low index thin

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layer, but Iida discloses a glass substrate with a multi-layer stack comprising alternating thin layers of high and low refractive indices wherein the high index thin layer comprises titanium oxide and the low index thin layer comprises silicon/aluminum oxide (column 3, lines 57-8 and column 4, lines 32). It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the silicon/aluminum low index thin layer of Iida, as the low index thin layer of Brock, because both layers are functionally equivalent, each having an index of refraction in the range of 1.4-1.7.

Regarding claim 16, Brock fails to mention the specific number of repeating sequences of high and low index thin layers that are to be used in the multi-layer structure, but Iida discloses that the alternating layers may repeat 2-3 times (column 3, lines 57-8 and column 4, lines 32). It would have been obvious to one having ordinary skill in the art at the time the invention was made to construct the multi-layer structure of Brock from 2-3 repeating sequences of alternating high and low refractive index layers, because such a structure is sufficiently high in reflectance for solar radiation and transmittance for visible light and such a multi-layer structure provides excellent weatherability, durability and chemical stability (column 4, lines 40-45).

Regarding claims 20-21, 23 and 25, Iida discloses that the multi-layer structure may further include a silver film and thereby exhibit electromagnetic shielding effects (column 6, lines 1-9). Iida also discloses that the multi-layer coating may be used as a vehicle windshield or a rear window glass by lamination with an uncoated transparent glass plate using a plastic interlayer such as polyvinyl butryal (column 4, lines 4-53).

Regarding claim 22, Iida discloses that the glass plate may be either colorless or colored and that the glass may be curved (column 5, lines 44-56).

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9. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No. 4,940,636 to Brock in view of US Patent No. 5,073,451 to Iida as applied to claim 22 above, and further in view of US Patent No. 5,948,544 to Kim.

Brock and Iida fail to mention or suggest the specific use of a polycarbonate or a polyacrylate polymer material in a multi-layer structure, but Kim discloses that it is known in the art to use polycarbonates substrates, instead of glass substrates (column 1, lines 49-54), in certain applications such as applications involving window glass for buildings (column 1, lines 8-12). It would have been obvious to one having ordinary skill in the art at the time the invention was made to use a polycarbonate substrate, as disclosed by Kim, as a substitute for the glass substrate, because polycarbonates provide a weight advantage and are impact resistant (column 1, lines 36-43).

Allowable Subject Matter

10. Claims 10-13 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The closest prior art is US Patent No. 4,940,636 to Brock. Brock discloses a glass substrate with a multi-layer stack comprising alternating thin layers of high and low refractive indices wherein the high refractive index thin layer comprises titanium oxide and the low refractive index thin layer comprises silicon dioxide (see patent claim 1). Brock fails to mention or suggest the use of at least one additional high index layer with a refractive index of at most 2.3. It would not have been obvious to one having ordinary skill in the art at the time the

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invention was made to include at least one additional high index layer, because it was not known in the art that the "overall" or "mean" refractive index of the multi-layer would be reduced.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew Piziali whose telephone number is (703) 306-0145 and whose fax number is (703) 746-7037. The examiner can normally be reached on Monday-Friday (8:00-4:30).


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Deborah Jones can be reached on (703) 308-3822. The fax numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 306-5665.



atp

March 5, 2002


DEBORAH JONES
SUPERVISORY PATENT EXAMINER